



## CNSC COMPLIANCE INSPECTION REPORT

**Inspection Identification No.:** SRBT-2016-01

**Compliance Inspection:** Type II Environmental Protection Inspection

**Prepared by:** Robert Buhr, Lead Inspector  
Nuclear Processing Facilities Division  
Directorate of Nuclear Cycle and Facilities Regulation

**Report Issuance Date:** December 16, 2016

**Security Designation:** Unclassified



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**CANADIAN NUCLEAR SAFETY COMMISSION**  
**COMPLIANCE INSPECTION**  
**Inspection Identification No.: SRBT-2016-01**

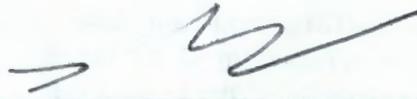
**Licensee:** SRB Technologies (Canada) Inc.

**Licence No.:** NSPFOL-13.00/2022

**Inspection Date(s):** October 04, 2016 – October 05, 2016

**Report Issuance Date:** December 20, 2016

**Prepared by:**

  
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**Safety and Control Area(s):** Environmental Protection

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## **EXECUTIVE SUMMARY**

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Pursuant to subsection 30(1) of the *Nuclear Safety and Control Act*, Canadian Nuclear Safety Commission (CNSC) staff conducted a Compliance Inspection at SRB Technologies (Canada) Inc. (SRBT) from October 4, 2016 to October 5, 2016. The purpose of this inspection was to ensure SRB Technologies (Canada) Inc. (SRBT) is in compliance with the Nuclear Safety and Control Act, the General Nuclear Safety and Control Regulations, their operating licence FFO-3631.00/2022 and its governing documentation.

The scope of the inspection focused on the safety and control area environmental protection specifically SRBT's environmental management program and environmental monitoring plan.

CNSC inspectors' preliminary inspection facts and findings were discussed with licensee staff. A *Preliminary Inspection Facts and Findings Report* was tabled during the closing meeting held on October 5, 2016.

The inspection team found areas of non-compliance, and therefore 1 Action Notice, and 3 Recommendations have been raised for SRBT to address. The identified action items do not pose an immediate or unreasonable risk to the health and safety of persons, but improvements are required to address the identified issues.

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## TYPE II ENVIRONMENTAL PROTECTION INSPECTION

### 1. INTRODUCTION

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An inspection at SRB Technologies (Canada) Inc. (SRBT) was conducted from October 4, 2016 to October 5, 2016.

The licensee was assessed against provisions of the *Nuclear Safety and Control Act* and its associated regulations, the conditions of the SRBT Licence NSPFOL-13.00/2022 [Ref. 1] and the *Licence Conditions Handbook for SRBT (LCH)* [Ref. 2], as well as applicable facility-specific and programmatic governing documentation.

Criteria for this inspection were derived directly from the set of documents described in the notification letter and compiled into a *Compliance Matrix*, which had been provided to licensee staff prior to the inspection. Observations, interviews and review of records were undertaken to assess compliance with regulatory expectations.

This report documents the findings and conclusions of the inspection, along with any compliance actions and recommendations arising from these findings. The results of this inspection activity will form part of CNSC staff's evaluation of the licensee's performance.

## 2. PURPOSE AND SCOPE

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The purpose of this inspection was to ensure SRBT is in compliance with the Nuclear Safety and Control Act, the General Nuclear Safety and Control Regulations, their operating licence FOL-3631.00/2022 and its governing documentation.

The scope of the inspection focused on the safety and control area environmental protection specifically SRBT's environmental management program and environmental monitoring plan.

## 3. DESCRIPTION OF INSPECTION METHODS

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The *Nuclear Safety and Control Act*, CNSC regulations, NSPFOL-13.00/2022 licence conditions, and governing documents were reviewed as part of the preparation for the inspection. Various items were selected for verification and compiled into a Compliance Matrix. The inspection also included field observations and information provided by licensee staff.

Three methods of assessment were used during the inspection:

A. Documentation and record review

- Records were verified to be maintained as required by many of the outlined criteria, and a review of selected documents were performed to ensure their accuracy and completeness.

B. Visual assessment and verification

- A physical inspection of the facility with licensee staff was conducted. Observations based on identified compliance criteria were made for verification purposes.

C. Interviews and discussions with licensee staff

- Interviews and discussions with various licensee staff were conducted during the inspection. Questions were posed based on compliance criteria and responses documented for verification purposes.

As per CNSC process, at the conclusion of the field verification portion of the inspection, a *Preliminary Inspection Facts and Findings* report [Ref. 4] was provided to SRBT representatives. This report was provided for purposes of outlining observations made by the inspection team at an overall level, based on a preliminary review of the criteria set identified in the *Compliance Matrix* and observations made.

Based on criteria identified in the *Compliance Matrix*, regulatory requirements and compliance expectations were determined to be met or not met, and reported as inspection findings. CNSC staff may identify compliance actions and recommendations in relation to an inspection finding.

## 4. INSPECTION RESULTS

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The following findings and subsequent compliance actions and recommendations are the result of CNSC staff's inspection at SRBT. This section of the report has been structured to show the link from the initial inspection finding to the resulting compliance action and/or recommendation as shown below:

- Compliance verification criteria used to identify the deficiency;
- A description of the observed deficiency;
- An analysis linking the compliance verification criteria or regulatory requirement to the observed deficiency; and
- Detailed compliance action or recommendation requiring the licensee to address the deficiency.

The order in which findings are presented in the report does not indicate a ranking of their safety significance.

The findings documented in this report were arrived at by assessing the facts and observations, gathered by CNSC staff during the inspection activities, with the related compliance criteria and regulatory requirements, as detailed in the *Compliance Matrix*. Where improvements are necessary, compliance actions and recommendations have been issued as detailed in this section of the inspection report.

### 4.1 ENVIRONMENTAL PROTECTION

#### 4.1.1 Passive Air Monitoring Procedure

##### Criteria

##### EMP-002 *Passive Air Monitoring*

“Section 5 Requirements...

3. Label each cap with one of the unique PAS monitor ID numbers including replicates, as well as the date the samplers are expected to be changed, and store in the holding rack....

5. Proceed to the first sampling station...”

*SRBT EMP Rev. B August 12, 2016*

Completed monthly

##### Fact(s)

The containers were observed to be labelled in field after the sample collection took place.

### **Analysis/Finding(s)**

CNSC staff noted that the procedure and the in-field practices are not consistent. The sample bottles are being labelled in-field after the sample is collected. CNSC staff consider both approaches to labelling sample containers acceptable. However, procedure adherence requires consistency between the in-field practices and the written procedure.

### **Compliance Action(s)/Recommendations**

CNSC staff concludes that the SRBT procedure EMP-002 is not consistent with in-field practices.

This conclusion forms the basis for the following Recommendation:

**SRBT-2016-01-R01:** *SRBT procedures should be updated, or enforced, such that the procedure is consistent with in-field practices.*

### **4.1.2 Liquid Scintillation Calibration**

#### **Criteria**

#### *RSO-011 Instrument Calibration*

“e. Liquid Scintillation Counters...

Annual maintenance and calibration is logged on the form ‘LSC Machine Calibration Record’”

#### **Fact(s)**

New PerkinElmer LSC machines were installed in November 2014. Calibrations records existed for 2014 and 2015. The calibration stickers were placed on the machines.

The calibration was not documented on the LSC Machine Calibration Record form. Calibration records for 1997 through 2013 were recorded on the LSC Machine Calibration Record.

### **Analysis/Finding(s)**

CNSC staff observed that the record of calibration has not been maintained on the form referenced by the procedure since the installation of the PerkinElmer LSC machines.

### **Compliance Action(s)/Recommendations**

CNSC staff noted that the procedure and the in-field practices are not consistent.

This conclusion forms the basis for the following Recommendation:

**SRBT-2016-01-R02:** *Update the procedure to reflect how the calibration of the PerkinElmer LSC machines is documented.*

#### 4.1.3 Liquid Effluent Assessment

##### Criteria

##### RSO-013 *Liquid Effluent Assessment*

“Once a week is completed, form RSO-013-F-02 shall be completed to document the daily effluent values. The final week total effluent is then input into RSO-013-F-04.”

##### Fact(s)

The records for January 4 – October 2, 2016, were reviewed. It was verbally explained that there was no record for weeks where there was no water discharged. Gaps in the records were observed. The available records were completed in full.

##### Analysis/Finding(s)

CNSC staff noted that it is difficult to distinguish between missing records and weeks where there was no water to be discharged. From an auditing prospective, this is a weakness in the program.

##### Compliance Action(s)/Recommendations

This conclusion forms the basis for the following Recommendation:

**SRBT-2016-01-R03:** *SRBT should ensure that a complete set of records are available.*

## 4.2 CONVENTIONAL HEALTH AND SAFETY

### 4.2.1 Contractor Health and Safety

##### Criteria

Section 9.1 Conventional Health and Safety Program, Licence Condition Handbook

“1. The licensee shall comply with the *Canada Labour Code* Part II.”

Canada Labour Code Part II Duties of Employers 124

“Every employer shall ensure that the health and safety at work of every person employed by the employer is protected.”

Canada Labour Code Part II Duties of Employers 125(1)(t)

“Ensure that the machinery, equipment and tools used by the employees in the course of their employment meet prescribed health, safety and ergonomic standards and are safe under all condition of their intended use”

Canada Labour Code Part I 3(1)

“Employee means any person employed by an employer and includes a dependent contractor and a private constable, but does not include a person who performs management functions or is employed in a confidential capacity in matters relating to industrial relations”

**Fact(s)**

The contractors used a ladder to access the passive air sampler at several locations, including the ditch at the side of a road. The area was characterized by brush and weeds. The footing of the ladder was uneven. SRBT verbally indicated that the ladder used by the contractors was not used by SRBT staff.

The contractors were observed collecting samples in high traffic areas including a lumber yard and at the side of a road. The contractors were not wearing the high visibility vests. The vests were available in their truck.

**Analysis/Finding(s)**

Two potentially unsafe situations were observed. It is SRBT’s responsibility to ensure the safety of employees, and to ensure tools used by employees are safe under all conditions of their intended use. The definition of employees includes contractors.

**Compliance Action(s)/Recommendations**

It is concluded that SRBT’s conventional health and safety program is not adequately enforced for contractors.

**SRBT-2016-01-A01:** *SRBT shall ensure contractors conduct activities in accordance with SRBT’s conventional health and safety program.*

## 5. SUMMARY OF COMPLIANCE ACTIONS AND RECOMMENDATIONS ISSUED

**SRBT-2016-01-R01:** *SRBT procedures should be updated, or enforced, such that the procedure is consistent with in-field practices.*

**SRBT-2016-01-R02:** *Update the procedure to reflect how the calibration of the PerkinElmer LSC machines is documented.*

**SRBT-2016-01-R03:** *SRBT should ensure that a complete set of records are available.*

**SRBT-2016-01-A01:** *SRBT shall ensure contractors conduct activities in accordance with SRBT's conventional health and safety program.*

## 6. CONCLUDING STATEMENTS

CNSC staff performed an inspection at SRBT in order to verify compliance with the *Nuclear Safety and Control Act*, its associated regulations, the conditions of the licence and the LCH.

As a result of these findings, and following further analysis of records provided and Inspection facts and findings, Inspectors found items of non-compliance with the criteria assessed from the *Compliance Matrix*, and therefore 1 Action Notice, and 3 Recommendations have been raised. SRBT is requested to submit its corrective action for each compliance action 60 days from the time the report was issued. The response must include corrective measures and proposed completion dates, including the date by which the corrective measure will be documented (if required), implemented, and verified for adequacy and effectiveness.

CNSC staff extend their appreciation to SRBT for their assistance in conducting this Inspection.

## 7. REFERENCES

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- [1] SRB Technologies (Canada) Inc. Nuclear Substance Processing Facility Operating Licence, NSPFOL-13.00/2022, (e-Doc 4624670).
- [2] SRB Technologies (Canada) Inc. Licence Conditions Handbook, (e-Doc 4899130).
- [3] Preliminary Inspection Facts and Findings, October 5, 2016, (e-Doc 5105284).

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**Appendix A. Definitions**

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**Compliance Action Categories:**

**Directive**

A written request that the licensee take action to correct a non-compliance with governing regulations, licence conditions, codes, standards or a general or sustained failure to adhere to approved documents, policies, procedures, instructions, programs, or processes that the licensee has established to meet licensing requirements.

**Action Notice**

A written request that the licensee take action to correct a non-compliance that is not a direct contravention of governing regulations, licence conditions, codes or standards, but that can compromise safety, security, or the environment. Such non-compliances include:

- A failure to satisfy one of the compliance criteria if the criteria are not directly referenced in the governing regulations or licence conditions.
- A significant but non-systemic failure to comply with the licensee's own policies, procedures, or instructions that it has established to meet licensing requirements (including programs and internal processes submitted in support of a licence application).

**Recommendations:**

**Recommendation**

A written suggestion to effect an improvement based on good industry practice. A recommendation is not an indication of non-compliance with regulatory requirements, and the recipient is not obliged to accept the recommendation. A recommendation is not subject to enforcement action. Recommendations shall not be issued as a means of suggesting improvements to areas outside the CNSC's mandate.

**Appendix B. Acronyms and Abbreviations**

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CNSC	Canadian Nuclear Safety Commission
LCH	Licence Conditions Handbook
SRBT	SRB Technologies (Canada) Inc.

**Appendix C. Attendance Record(s)**

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e-Doc 5076518, 5076535









Appendix D. **Compliance Matrix**

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**DIRECTORATE OF NUCLEAR CYCLE AND FACILITIES REGULATION  
COMPLIANCE MATRIX**

e-Doc 5078285





**DIRECTORATE OF NUCLEAR CYCLE AND FACILITIES REGULATION  
COMPLIANCE MATRIX**

<b>Division</b>	NPFD
<b>Title of Inspection</b>	Compliance Inspection
<b>Inspection Identification Number</b>	SRBT-2016-01
<b>Name of Licensee</b>	SRB Technologies (Canada) Inc.
<b>Location/Site</b>	Pembroke, ON
<b>Licence Number</b>	NSPFOL-13.00/2022

**Inspection Team:**  
 Robert Buhr, Senior Project Officer, NPFD (Lead Inspector)  
 Kavita Murphy, Director, NPFD  
 Zoe Heilig, Environmental Program Officer, ECLSD  
 Mike Jones, Environmental Program Officer, ECLSD

**Safety and Control Area(s) of Interest:**

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Management System            | <input type="checkbox"/> Conventional Health and Safety      | <input type="checkbox"/> Radiation Protection                     |
| <input type="checkbox"/> Human Performance Management | <input checked="" type="checkbox"/> Environmental Protection | <input type="checkbox"/> Packaging and Transport                  |
| <input type="checkbox"/> Operating Performance        | <input type="checkbox"/> Waste Management                    | <input type="checkbox"/> Physical Design                          |
| <input type="checkbox"/> Safety Analysis              | <input type="checkbox"/> Security                            | <input type="checkbox"/> Emergency Management and Fire Protection |
| <input type="checkbox"/> Fitness for Service          | <input type="checkbox"/> Safeguards and Non-Proliferation    |   |
| <input type="checkbox"/> Other:                       | _____  |   |

Environmental Protection					
	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
1	Source: Regulation Details: Section 12(1)(c) and (f) of General Nuclear Safety and Control Regulations	Every licensee shall (c) take all reasonable precautions to protect the environment and the health and safety of persons and to maintain the security of nuclear facilities and of nuclear substances (f) take all reasonable precautions to control the release of radioactive nuclear substances or hazardous substances within the site of the licensed activity and into the environment as a result of the licensed activity	<b>Observations:</b> 1. SRBT continues to implement and maintain an environmental protection program and to take all reasonable precautions to protect the environment and the health and safety of persons and to maintain the security of nuclear facilities and of nuclear substances. 2. All required air emissions and liquid effluent controls were observed to be functioning during the inspection.	The criteria is met. There are no findings.	Objectives are met
2	Source: Regulation Details: Section 14 (1) of Class 1 Nuclear Facilities Regulations	Every licensee shall keep a record of the results of the effluent and environmental monitoring programs referred to in the licence.	<b>Observations:</b> 1. SRBT maintains records of the results of effluent and environmental monitoring programs referred to in the Licence. 2. Air emission, liquid effluent and environmental monitoring records requested during the inspection were available for review by CNSC staff.  <b>Documents Reviewed:</b> Records are identified within the compliance matrix for specific SRBT procedures.	The criteria is met. There are no findings.	Objectives are met
3	Source: Regulation	Every licensee shall implement a	<b>Observations:</b>	The criteria is met. There are no	Objectives

Environmental Protection					
	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
	Details: Section 4 (b) of Radiation Protection Regulations	radiation protection program and shall as part of that program ascertain the quantity and concentration of any nuclear substance released as a result of the licensed activity (i) By direct measurement as a result of monitoring (ii) If the time and resources required for direct measurement as a result of monitoring outweigh the usefulness of ascertaining the quantity and concentration using that method, by estimating them	1. SRBT continues to implement and maintain an environmental protection program to ascertain the quantity and concentration of any nuclear substance released.  2. SRBT continues to operate and maintain their emission and effluent monitoring equipment.  <b>Documents Reviewed:</b> Records are identified within the compliance matrix for specific SRBT procedures.	findings.	are met
4	Source: LC Details: Environmental Protection, Licence condition 10.1 of NSFOL-13.00/2022	10.1 The licensee shall implement and maintain an environmental protection program, which includes a set of action levels. When the licensee becomes aware that an action level has been reached, the licensee shall notify the Commission within seven days.	<b>Observations:</b> 1. The 2015 data in tables in the ACR associated with air emissions was verified for transcription errors by reviewing the source spreadsheet. The data in the following tables was found to be accurately transcribed into the ACR. 2. The ACR is compiled by one individual, who solicits information from the 10 organizational group managers. The sections are sent back to the section managers for review before the report as a whole is	SRBT's environmental protection program complies with licence conditions 10.1. None of the gaps identified in the inspection were significant enough to be a violation of the licence requirements.	Objectives are met

Environmental Protection					
	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
			reviewed by senior management. All content is reviewed by at least two people. The process is not formalized.		
5	Source: Other Details: Environmental Management System, Section 2.2 of REG DOC 2.9.1, Environmental Aspects	The licensee shall perform the following tasks: Establish, implement and maintain an EMS that meets the requirements set by CAN/CSA ISO 14001:2004, <i>Environmental Management Systems: Requirements with Guidance for Use</i> .  CAN/CSA ISO 14001:2004, Clause 4.3.1 Environmental Aspects "... The organization shall document this information and keep it up to date."	<b>Observations:</b> 1. The Significant Environmental Aspect is the same 2008 document previously submitted to the CNSC. The static nature of the list was justified by the licensee by the lack of substantial changes to the process. 2. SRBT staff verbally confirmed that the Environmental Aspect list will be reviewed after the environmental risk assessment is completed.	The licensee has met the intent of this the clause. The document is kept up to date.	Objectives are met
6	Source: Other Details: Environmental Management System, Section 2.2 of REG DOC 2.9.1, Objectives and Targets	The licensee shall perform the following tasks: Establish, implement and maintain an EMS that meets the requirements set by CAN/CSA ISO 14001:2004, <i>Environmental Management Systems: Requirements with Guidance for Use</i> .  CAN/CSA ISO 14001:2004, Clause 4.3.3 Objectives, targets and programme(s) "The organization shall establish, implement and maintain documented environmental objectives and targets, at relevant functions and	<b>Observations:</b> 1. CNSC staff reviewed the 2016 safety performance objectives. These were reported in the ACR. The objectives for 2016 were established in March 2016. 2. The separate document for objectives and targets has not been maintained since 2014. 2. Reviewed SRB Technologies Weekly Emission Data, From Dec 29 – Jan 5 to September 13-20. Emissions were 46.36 % of the target. This was calculation is documented in	The objectives and targets meet the requirements of ISO 14001. The targets were measureable and consistent with the environmental policy. The targets and objectives were assigned to the appropriate authorities, who demonstrated responsibility for achieve the objectives and targets by reviewing performance throughout the year in meetings and in spreadsheets that are updated periodically.	Objectives are met

Environmental Protection					
	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
		levels within the organization....”	<p>the spreadsheet.</p> <p>3. CNSC staff reviewed the Mitigation Committee Meeting Minutes to confirm that the Objectives and Targets were discussed.</p> <p><b>Documents Reviewed:</b></p> <p>1. SRB Technologies Weekly Emission Data, Rev A, Oct 6, 2014 (REF RSO-006)</p> <p>2. Mitigations Committee Meeting Minutes:</p> <ul style="list-style-type: none"> <li>• January, 2015</li> <li>• June, 2015</li> <li>• November, 2015</li> </ul> <p>3. Weekly Emission Data, From Dec 29 – Jan 5 to September 13-20</p>		
7	Source: Other Details: Environmental Management System, Section 2.2 of REG DOC 2.9.1, Management Review	The licensee shall perform the following tasks: Conduct a management review (clause 4.6 of CAN/CSA ISO 14001:2004) annually.	<p><b>Observations:</b></p> <p>1. Reviewed the meeting minutes for the April 28, 2016 Management Review Meeting.</p> <p>2. The meeting included “old business”, “new business” and actions.</p> <p><b>Documents Reviewed:</b></p> <p>1. April 28, 2016 Management Review Meeting</p>	SRBT demonstrated that a Management Review Meeting on the EMS had occurred within the last year.	Objectives are met
8	Source: Other	The licensee shall perform the	<b>Observations:</b>	SRBT demonstrated that the non-	Objectives

Environmental Protection					
	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
	Details: Environmental Management System, Section 2.2 of REG DOC 2.9.1, EMS, Section 2.2 of REG DOC 2.9.1	<p>following tasks: Establish, implement and maintain an EMS that meets the requirements set by CAN/CSA ISO 14001:2004, <i>Environmental Management Systems: Requirements with Guidance for Use</i>.</p> <p>CAN/CSA ISO 14001:2004, Clause 4.5.3 Nonconformity, corrective action and preventive action, "The organization shall establish, implement and maintain a procedure(s) for dealing with actual and potential nonconformity (ies) and for taking corrective action and preventive action."</p>	<p>1. Issues are raised in non-conformance reports. The non-conformance report register, which is a binder containing all non-conformance reports for the year of 2015, was observed by CNSC staff.</p> <p>2. The non-conformance report associated with the 2015 action level exceedance was reviewed in detail. It contained the investigation and record of action.</p> <p>3. SRBT staff verbally indicated that anyone in the organization can raise an issue.</p> <p>4. SRBT staff verbally described that the process results in corrective actions, cause analysis and a management meeting.</p> <p><b>Documents Reviewed:</b></p> <p>1. Non-conformance report register - 2015</p> <p>2. Non-conformance report 464, Date June 2, 2015 Action level exceedance report May 26 – June 2, 2015</p>	conformance program meets the intent of clause 4.5.3 of ISO 14001.	are met
9	Source: Other Details: Environmental Management System,, Section 2.2 of REG DOC 2.9.1, Internal Audits	The licensee shall perform the following tasks: Conduct internal audits (clause 4.5.5 of CAN/CSA ISO 14001:2004) at planned intervals so	<p><b>Observations:</b></p> <p>1. SRBT staff confirmed verbally that the audit is conducted against the program, not the ISO 14001</p>	CNSC staff verified that the EMS audits are performed at planned intervals that are less than a 5 year cycle.	Objectives are met

Environmental Protection					
	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
		that all elements of the EMS are audited on at least a five-year cycle.	<p>requirements.</p> <p>2. SRBT staff verbally confirmed that historically the audit cycle was every element was audited every year. SRBT staff indicated that SRBT would start auditing every element of the EMS on a 3 year cycle starting in 2016.</p> <p><b>Documents Reviewed:</b></p> <p>1. Internal Audit Report, Environmental Protection, No. 03-15, Audit conducted May 18, 2015</p> <p>2. Internal Audit Report Environmental Protection, No. 07-16, Audit conducted August 4, 2016</p>		
10	<p>Source: Other</p> <p>Details: EMP-002 <i>Passive Air Monitoring</i></p> <p>SRBT EMP Rev. B August 12, 2016</p>	<p>A complete switch of the deployed array of 40 monitors is conducted following the written directions in EMP-002.</p> <p>Completed monthly</p>	<p><b>Observations:</b></p> <p>1. CNSC staff observed the collection of passive air samples PA22, PA18, PA18 duplicate, PA15 and PA11 and PA11 duplicate.</p> <p>2. Sample containers were not labelled in advance of sampling as per procedure. The contractor verbally confirmed that the sample containers are typically labelled in-field after the sample is collected.</p> <p>3. Some air samplers were attached to poles that could be dismantled. Some</p>	<p>CNSC staff observed some conventional health and safety issues. The contractors used a ladder to access the passive air sampler at several locations, including the ditch at the side of a road. The area was characterized by brush and weeds. The footing of the ladder was uneven. SRBT verbally indicated that the ladder in use by the contractors was not considered safe enough for SRBT staff.</p>	Objectives were not satisfied

Environmental Protection					
	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
			<p>air samplers were fixed to existing infrastructure (ie. telephone poles)</p> <p>4. A ladder was used to collect the passive air sample at several stations. There was not even footing for the ladder at all stations. SRBT staff noted that the specific ladder used was requested by the contractor because it is light.</p> <p>5. Station 22 was in a lumber yard. Station 18 was at the side of a road. High visibility clothing was not worn. High visibility vest were observed in the contractor's truck.</p>	<p>The contractors were observed collecting samples in high traffic areas including a lumber yard, and at the side of the road. The contractors were not wearing the high visibility vests available in their truck. This presents a danger.</p> <p>It is SRBT's responsibility to ensure the safety of the contractors and to ensure that the contractors abide by the employers occupational health and safety program.</p> <p>CNSC staff noted that the procedure and the in-field practices are not consistent. The procedure calls for the sample containers to be labelled before sampling begins. The containers were observed to be labelled in field after the sample collection took place.</p>	
11	<p>Source: Other Details: EMP-003 <i>Precipitation Monitoring – Field Sampling</i> SRBT EMP Rev. B August 12, 2016</p>	<p>A complete switch of the deployed array of 8 monitors is conducted following the written directions in EMP-003 and EMP-002-F-01 SRBT EMP Written Directions: PAS/ Precip Monitors</p>	<p><b>Observations:</b></p> <ol style="list-style-type: none"> <li>1. Observed the collection of precipitation samples 22P, 18P, 15P and 11P.</li> <li>2. The sample bottles were pre-labeled, as per the procedure.</li> <li>3. Containers all mounted to poll that</li> </ol>	<p>The criteria are met. There are no findings.</p>	<p>Objectives are met</p>

Environmental Protection					
	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
		Completed monthly	can be taken apart to access sample.		
12	Source: Other Details: RSO-031 <i>Tritium concentrations in precipitation</i>	Procedure is adhered to as described in the document.	<b>Observations:</b> 1. The containers for the sampling were observed. They were pre-labelled and contained enough paraffin to completely cover the water sample.	Limited aspects of the procedure were verified. Of the aspects checked, the criteria are met. There are no findings.	Objectives are met
13	Source: Other Details: RSO-011 <i>Instrument Calibration</i>	Tritium in air Monitors: "Once instrument calibration is accepted, apply a new calibration sticker with the required information"	Item not observed.	Item not observed.	
14	Source: Other Details: RSO-011 <i>Instrument Calibration</i>	"In general, eight mass flow meters are owned and used by SRBT for this purpose. Four of these should be available for use (within valid calibration) at all times. Two will be in service, and two are spares in case of problems or failures".	<b>Observations:</b> 1. SRBT verbally confirmed the 8 flow meters were owned by the company. 2. The two flow meters in service were due for calibration on March 22, 2017. 3. The two spares that were in calibration and available for use were observed. 4. SRBT confirmed that four additional flow meters were in storage and would be sent out for calibration in the near future.	The criteria are met. There are no findings.	Objectives are met
15	Source: Other Details: EMP-002 <i>Passive Air Monitoring Section 5 Step 5</i>	EMP-002-F-01 is completed with the time the sampler was switched for each of the 40 samplers	<b>Observations:</b> 1. The "SRBT EMP Written Directions: PAS/Precip Monitors" was reviewed for the sample date of	The criteria are met. There are no findings.	Objectives are met

Environmental Protection					
	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
			<p>October 2, 2016. The log data was complete.</p> <p><b>Documents Reviewed:</b> 1. EMP-002-F-01 <i>SRBT EMP Written Directions: PAS/ Precip Monitors</i> October 2, 2016</p>		
16	<p>Source: Other Details: EMP-003 <i>Precipitation Monitoring – Field Sampling</i></p>	<p>EMP-002-F-01 is completed with the time the sampler was switched for all 8 samplers.</p>	<p><b>Observations:</b> 1. The “SRBT EMP Written Directions: PAS/Precip Monitors” was reviewed for the sample date of October 2, 2016. The log data was complete.</p> <p><b>Documents Reviewed:</b> 1. EMP-002-F-01 <i>SRBT EMP Written Directions: PAS/ Precip Monitors,</i> October 2, 2016</p>	<p>The criteria are met. There are no findings.</p>	<p>Objectives are met</p>
17	<p>Source: Other Details: EMP-004 <i>Receiving Water / River Monitoring – Field Sampling</i>  <i>SRBT EMP Rev. B August 12, 2016</i></p>	<p>The <i>monthly task list</i> is initialed indicating the sampling is completed.</p> <p>Completed monthly</p>	<p><b>Observations:</b> 1. The monthly check was provided on two forms. The form was revised in June of 2016. The data from January through June was transcribed onto the new monthly check sheet. 2. The form had check marks in the column for the receiving water task, indicating the sample was collected for January 2016 through September 2016.</p>	<p>The criteria are met. There are no findings.</p>	<p>Objectives are met</p>

Environmental Protection					
	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
			<p><b>Documents Reviewed:</b></p> <p>1. EMP <i>monthly check 2016, no doc #, Rev E, revised January 4, 2012</i></p> <p>2. EMP <i>monthly check 2016, EMP-001-F-01 Rev, revised June 30, 2016</i></p>		
18	<p>Source: Other</p> <p>Details: EMP-005 <i>Commercial Produce Monitoring – Field Sampling SRBT EMP Rev. B August 12, 2016</i></p>	<p>The <i>monthly task list</i> is initialed indicating the sampling is completed.</p> <p>Completed once / year in September</p>	<p><b>Observations:</b></p> <p>1. The form indicated that commercial produce sampling was required in September.</p> <p>2. A checkmark indicated that the work was completed in September.</p> <p><b>Documents Reviewed:</b></p> <p>1. EMP <i>monthly check 2016, no doc #, Rev E, revised January 4, 2012</i></p> <p>2. EMP <i>monthly check 2016, EMP-001-F-01 Rev, revised June 30, 2016</i></p>	The criteria are met. There are no findings.	Objectives are met
19	<p>Source: Other</p> <p>Details: EMP-006 <i>Residential Produce Monitoring – Field Sampling SRBT EMP Rev. B August 12, 2016</i></p>	<p>The <i>monthly task list</i> is initialed indicating the sampling is completed.</p> <p>Completed once / year in September</p>	<p><b>Observations:</b></p> <p>1. The form indicated that residential produce sampling was required in September.</p> <p>2. A checkmark indicated that the work was completed in September.</p> <p>3. Form EMP-006-F-01 had notes from call results, and a log of produce collected in previous years by residence. It was well organized.</p>	The criteria are met. There are no findings.	Objectives are met

Environmental Protection					
	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
			<b>Documents Reviewed:</b> 1. EMP monthly check 2016, no doc #, Rev E, revised January 4, 2012 2. EMP monthly check 2016, EMP-001-F-01 Rev , revised June 30, 2016. 3. EMP-006-F-01 Rev H Produce Sampling Contact Information, 2016		
20	Source: Other Details: EMP-007 Milk Monitoring – Field Sampling  SRBT EMP Rev. B August 12, 2016	The <i>monthly task list</i> is initialed indicating the sampling is completed.  Completed 3 times annually (March, July, November).	<b>Observations:</b> 1. The form indicated that the milk samples needed to be collected in March, July and November. 2. The form indicated the sample was completed in March. There was an X in the row for July. A comment was provided: “Milk deferred to August – Sar’s empty”. The form indicated the sample was collected in August.  <b>Documents Reviewed:</b> 1. EMP monthly check 2016, no doc #, Rev E, revised January 4, 2012 2. EMP monthly check 2016, EMP-001-F-01 Rev , revised June 30, 2016	The criteria are met. There are no findings.	Objectives are met
21	Source: Other Details: EMP-008 Sludge Cake Monitoring - Field Sampling	The <i>monthly task list</i> is initialed indicating the sampling is completed.  Completed twice annually (spring and	<b>Observations:</b> 1. Rev F of the form shows that sludge is required in March and September.	Collection of sludge was not formally part of the environmental monitoring program before revision B came into effect mid-way through 2016. The	Objectives are met

Environmental Protection					
	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
	<i>SRBT EMP Rev. B August 12, 2016</i>	fall).	<p>2. The form indicated the work was completed in September. There was no indication on the form that the work was completed in March.</p> <p><b>Documents Reviewed:</b>            1. EMP <i>monthly check 2016, no document number, Rev E, revised January 4, 2012</i>            2. EMP <i>monthly check 2016, EMP-001-F-01 Rev, revised June 30, 2016</i></p>	<p>sample not being collected thus does not indicate there is a non-compliance.</p> <p>The criteria are met. There are no findings.</p>	
22	<p>Source: Other            Details: EMP-009 <i>Wine Monitoring – Field Sampling</i>   <i>SRBT EMP Rev. B August 12, 2016</i></p>	<p>The <i>monthly task list</i> is initialed indicating the sampling is completed.</p> <p>Completed once annually (September).</p>	<p><b>Observations:</b>            1. The form indicated that wine monitoring was required in September.            2. The form had a checkmark indicating the work was complete.</p> <p><b>Documents Reviewed:</b>            1. EMP <i>monthly check 2016, no doc #, Rev E, revised January 4, 2012</i>            2. EMP <i>monthly check 2016, EMP-001-F-01 Rev, revised June 30, 2016</i></p>	The criteria are met. There are no findings.	Objectives are met
23	<p>Source: Other            Details: EMP-010 <i>Residential Drinking Water – Field Sampling</i>   <i>SRBT EMP Rev. B August 12, 2016</i></p>	<p>Comments and issues are noted on the <i>Well Identification and Contact Information</i> form.</p> <p>The <i>monthly task list</i> is initialed indicating the sampling is completed.</p>	<p><b>Observations:</b>            1. The form indicated that residential well sampling was required in March, July and November.            2. The form was filled out for March and July.</p>	The criteria are met. There are no findings.	Objectives are met

Environmental Protection					
	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
		Completed three times annually (March, July, November).	<b>Documents Reviewed:</b> 1. EMP-010-F-01 <i>Well Identification and Contact Information</i> 2. EMP-001-F-02 <i>monthly task list</i>		
24	Source: Other Details: EMP-011 <i>Downspout Runoff – Field Sampling</i>  SRBT EMP Rev. B August 12, 2016	The spreadsheet includes “tritium concentration information for each sampled downspout, as well as the time and date that the samples were taken, and any relevant data on weather conditions (rain, snow melt)”  Goal is once per calendar quarter.	<b>Observations:</b> 1. H-3 concentrations reported in Bq/L. 2. Data from Oct 20, 2011 to 15 July 2016 is kept in an excel spreadsheet 3. The lower limit of detection is 100 Bq/L. 4. The weather conditions are recorded as of Aug 20, 2015. 5. This data is not used for anything. Taken for historical purposes. 6. Downspouts 1 - 6 are labeled on spreadsheet. 7. There is no trigger to indicate when an action should be taken. 8. SRBT demonstrated that they achieved goal of once per calendar year.  <b>Documents Reviewed:</b> 1. downspout spreadsheet	The criteria are met. There are no findings.	Objectives are met
25	Source: Other Details: EMP-013 <i>Acceptance Criteria for EMP</i>	Monthly interpretation required by EMP-014	<b>Observations:</b> 1. The interpretation has been completed since July 2016.	The criteria are met. There are no findings.	Objectives are met

Environmental Protection																																																	
	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET																																												
	EMP-014 <i>Interpretation and Reporting Requirements for EMP Data</i>	<p><b>Benchmark values</b></p> <table border="1"> <tr> <td>Sample Type / Parameter</td> <td>Benchmark Value</td> </tr> <tr> <td>Air / HTO</td> <td>340 Bq/m<sup>3</sup></td> </tr> <tr> <td>Produce / HTO</td> <td>100,000 Bq/kg fresh weight</td> </tr> <tr> <td>Water / HTO</td> <td>7,000 Bq/L</td> </tr> <tr> <td>Milk / HTO</td> <td>5,560 Bq/L</td> </tr> <tr> <td>Wine / HTO</td> <td>45, 100 Bq/L</td> </tr> <tr> <td>Sewage sludge / HTO</td> <td>68,500,000 Bq/kg fresh weight</td> </tr> </table> <p><b>MDA</b></p> <table border="1"> <tr> <td>Analysis</td> <td>Medium</td> <td>MDS limit</td> </tr> <tr> <td>HTO</td> <td>Air</td> <td>1.0 Bq/m<sup>3</sup></td> </tr> <tr> <td>HTO</td> <td>Drinking water</td> <td>20 Bq/L</td> </tr> <tr> <td>HTO</td> <td>River water</td> <td>20 Bq/L</td> </tr> <tr> <td></td> <td>Downspout water</td> <td>20 Bq/L</td> </tr> <tr> <td></td> <td>Precipitation</td> <td>20 Bq/L</td> </tr> <tr> <td></td> <td>Milk</td> <td>20 Bq/L</td> </tr> <tr> <td></td> <td>Wine</td> <td>20 Bq/L</td> </tr> <tr> <td></td> <td>Biological</td> <td>20 Bq/L</td> </tr> <tr> <td>OBT</td> <td>Biological</td> <td>20 Bq/L</td> </tr> </table> <p>-Blank or background is less than MDA -Accuracy of spiked samples is -25% to +50% -Precision of duplicates is +/- 40%</p>	Sample Type / Parameter	Benchmark Value	Air / HTO	340 Bq/m <sup>3</sup>	Produce / HTO	100,000 Bq/kg fresh weight	Water / HTO	7,000 Bq/L	Milk / HTO	5,560 Bq/L	Wine / HTO	45, 100 Bq/L	Sewage sludge / HTO	68,500,000 Bq/kg fresh weight	Analysis	Medium	MDS limit	HTO	Air	1.0 Bq/m <sup>3</sup>	HTO	Drinking water	20 Bq/L	HTO	River water	20 Bq/L		Downspout water	20 Bq/L		Precipitation	20 Bq/L		Milk	20 Bq/L		Wine	20 Bq/L		Biological	20 Bq/L	OBT	Biological	20 Bq/L	<p>2. Previously AECL completed the data acceptance, but SRBT did not. 3. The form was reviewed for the following sample sets: July 25, 2016 (sampled July 5, 2016) August 18, 2016 (Sampled Aug 3, 2016) September 14, 2016 (Sampled Sept 1, 2016) 3. The data reviewed in the sample sets above met the criteria established in EMP-013.</p> <p><b>Documents Reviewed:</b> 1. EMP-0130F-01 <i>EMP Monthly Data Acceptance</i> for July 25, 2016, August 18, 2016 and September 14, 2016</p>		
Sample Type / Parameter	Benchmark Value																																																
Air / HTO	340 Bq/m <sup>3</sup>																																																
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OBT	Biological	20 Bq/L																																															
26	Source: Other	"The results are contrasted against the	<b>Observations:</b>	The criteria are met. There are no	Objectives																																												

Environmental Protection					
	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
	Details: LSC-003 <i>Analysis of LSC Quality Control Data</i>	<p>established maximum values below. This check should be documented by the analyst using an initial, circled result or checkmark, or any other way to show that the background count rate was assessed.</p> <p>Maximum values of backgrounds are as follows:</p> <ul style="list-style-type: none"> <li>- Water tests ... 40 cpm</li> <li>- Swipe tests – 40 cpm</li> <li>- Bioassay – 40 cpm</li> <li>- Betalight leak testing – ... 200 cpm”</li> </ul>	<p>1. Reviewed TriCarb B 20160_0831. The first analysis is the check against background measured 27 CPM lower than the reference 40 cpm</p> <p><b>Documents Reviewed:</b></p> <ol style="list-style-type: none"> <li>1. LSC-003-F-01 <i>Quality Control worksheet for LSC Reference Standards</i></li> <li>2. TriCarb B 20160_0831</li> </ol>	findings.	are met
27	Source: Other Details: LSC-003 <i>Analysis of LSC Quality Control Data</i>	<p>“The following information shall be tracked in the database spreadsheet:</p> <ul style="list-style-type: none"> <li>- Initial measured activity of the reference standard (in DPM)</li> <li>- Decay adjusted activity each time the sample is measured (in DPM)</li> <li>- Actual measured activity of the standard, including sample set ID, date of measurement, and which LSC counted the measurements were made on</li> <li>- If the measured activity was within two compensated standard deviations (warning limit) of the decay adjusted acidity expected</li> <li>- If the measured activity was within</li> </ul>	<p><b>Observations:</b></p> <p>1. Reviewed spreadsheet QC Data ENV 2016 HI-001. This is the only reference standard that is being used for environmental analysis. All the required information was is documented in the spreadsheet.</p> <p><b>Documents Reviewed:</b></p> <ol style="list-style-type: none"> <li>1. LSC-003-F-01 <i>Quality Control worksheet for LSC Reference Standards</i></li> <li>2. Spreadsheet QC Data ENV 2016 HI-001.</li> </ol>	The criteria are met. There are no findings.	Objectives are met

Environmental Protection					
	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
		<p>three compensated standard deviations (action limit) of the decay adjusted activity expected.</p> <ul style="list-style-type: none"> <li>- Whether the standard measured higher of lower than the decay adjusted activity expected.</li> </ul> <p>The analyst can indicate the run is acceptable by noting on the printout that the QA is 'OK', 'acceptable' or other positive note and initialing the printout."</p>			
28	<p>Source: Other Details: LSC-003 <i>Analysis of LSC Quality Control Data</i></p>	<p>"The following situations indicated potential 'out-of-control' conditions which require assessment:</p> <ul style="list-style-type: none"> <li>- A reference standard is measures as more of less than 5% of the expected characterized, decay adjusted DPM value</li> <li>- Any reference standard is measured outside the action limit...</li> <li>- Any reference standard is measured outside of the warning limit...</li> </ul> <p>An assessment of potential out-of-control conditions should be</p>	<p><b>Observations:</b> 1. Reviewed spreadsheet, Spreadsheet QC Data ENV HI-001. 5% is identified at the end of the spreadsheet.</p> <p><b>Documents Reviewed:</b> 1. LSC-003-F-01 <i>Quality Control worksheet for LSC Reference Standards</i> 2. Spreadsheet QC Data ENV HI-001</p>	<p>The criteria are met. There are no findings.</p>	<p>Objectives are met</p>

Environmental Protection					
	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
		performed by the Manager – HP&RA or delegate ... Notes on the assessment should be included in the appropriate area of the LCS-003-F-01 spreadsheet.”			
29	Source: Other Details: RSO-006 <i>Weekly Stack Monitoring</i>	“Inspect weekly the gaseous emissions monitoring equipment to ensure proper and effective operating condition as per the criteria listed on the current form ‘Bubbler Data Worksheet’ (RSO-006-F-04). Record the inspection criteria on the current check sheet including observations.”	<b>Observations:</b> 1. CNSC staff reviewed the records for October 2015 through September 2016. The records indicated the task was completed weekly.  <b>Documents Reviewed:</b> 1. RSO-006-F-04 <i>Bubbler Data Worksheet</i>	The criteria are met. There are no findings.	Objectives are met
30	Source: Other Details: RSO-006 <i>Weekly Stack Monitoring</i>	“Inspect and record daily the gaseous emissions monitoring equipment to ensure proper and effective operating condition as per the criteria listed on the ‘Stack Monitoring Equipment Check Sheet’ including but not limited to the following: - Date and time - Initials - Rig Sampler System; flow rate, volume and furnace temperature - Bulk Sampler System; flow rate, volume and furnace temperature -Rig Real Time Monitor flow rate - Bulk Real Time Monitor flow rate	<b>Observations:</b> 1. Real Time Stack Monitoring Readings Sheet contained all required information. 2. Reviewed Stack Monitoring Equipment Check Sheet RSO-006-F-01 Rev D 2014-Oct-13 3. All records for 2015 were found to be completed. Records reviewed for 2016 from Jan 1, 2016 to October 5, 2016.  <b>Documents Reviewed:</b> 1. RSO-006-F-01 <i>Stack Monitoring Equipment Check Sheet</i>	The criteria are met. There are no findings.	Objectives are met

Environmental Protection					
	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
		- Batter Backup Status”			
31	Source: Other Details: RSO-006 <i>Weekly Stack Monitoring</i>	“Routine maintenance activities on the TASC / bubbler systems are recorded on the ‘Stack Monitoring Equipment Maintenance Sheet’ form (RSO-006-F-03).”	<p><b>Observations:</b></p> <ol style="list-style-type: none"> <li>1. Maintenance Activities to be completed every 2 months by HP team.</li> <li>2. Reviewed from Sept 6, 2016 to July 7, 2015</li> <li>3. Maintenance was done every month as of March 3, 2015. Reviewed from March 3, 2015 to Jan 2016</li> </ol> <p><b>Documents Reviewed:</b></p> <ol style="list-style-type: none"> <li>1. RSO-006-F-03 <i>Stack Monitoring Equipment Maintenance Sheet</i></li> </ol>	The criteria are met. There are no findings.	Objectives are met
32	Source: Other Details: RSO-006 <i>Weekly Stack Monitoring</i>	“The sampling of the stack monitoring is performed on a weekly basis ... Record data on the ‘Stack Morning Report Form’” (RSO-006-F-02”	<p><b>Observations:</b></p> <ol style="list-style-type: none"> <li>1. Reviewed record for October 2015 to Sept 2016. No negative observations were made.</li> </ol> <p><b>Documents Reviewed:</b></p> <ol style="list-style-type: none"> <li>1. RSO-006-F-02 <i>Stack Monitoring Report Form</i></li> <li>2.</li> </ol>	The criteria are met. There are no findings.	Objectives are met
33	Source: Other Details: RSO-011 <i>Instrument Calibration</i>	Tritium Gas Calibrator “Re-assess the contents of the cylinder every 5 years, or replace the cylinder.”	<p><b>Observations:</b></p> <ol style="list-style-type: none"> <li>1. SRBT staff stated that they never re-assess the contents. They buy a new one before 5 years.</li> <li>2. The current tritium gas calibrator</li> </ol>	The criteria are met. There are no findings.	Objectives are met

Environmental Protection					
	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
			<p>expires in 2018.</p> <p><b>Documents Reviewed:</b> 1. Tritium Gas Calibrator contents record</p>		
34	Source: Other Details: RSO-011 <i>Instrument Calibration</i>	<p>Five readings were recorded for the instrument calibration of the tritium in air monitors.</p> <p>The calibration record is completed, signed off and verified by a member of the HP team.</p>	<p><b>Observations:</b> 1. The expected five measurements were documented for a five point calibration, and the form was signed off.</p> <p><b>Documents Reviewed:</b> 1. RSO-011-F-01 <i>Instrument Calibration Record</i></p>	The criteria are met. There are no findings.	Objectives are met
35	Source: Other Details: RSO-011 <i>Instrument Calibration</i>	<p>Liquid Scintillation Counters</p> <p>“Annual maintenance and calibration is logged on the form ‘LSC Machine Calibration Record’”</p> <p>“‘Self Normalization and Calibration’ assay must be run on each LSC. ... Ideally, this assay should be performed on the first operational day of the week’”</p>	<p><b>Observations:</b> 1. New PerkinElmer LSC machines were installed in November 2014. Calibrations records existed for 2014 and 2015. The calibration was not documented on the LSC Machine Calibration Record form. The calibration stickers were placed on the machines. 2. Calibration records for 1997 through 2013 were recorded on the LSC Machine Calibration Record. 3. The SNC form contained all the required components. 4. Reviewed the SNC Spreadsheet</p>	CNSC staff observed noted that the record of calibration has not been maintained on the form referenced by the procedure since the installation of the PerkinElmer LSC machines.	Objectives were not satisfied

Environmental Protection					
	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
			<p>“IPA Monitoring”. It was complete 5. Reviewed IPA Monitoring 2015. It was complete</p> <p><b>Documents Reviewed:</b> 1. LSC Machine Calibration Record 2. SNC report 3. SNC Spreadsheet “IPA Monitoring”, Tab 2016-TriCarb A, 2016 Tri Carb B weekly 2016. 4. IPA Monitoring 2015 spreadsheet</p>		
36	Source: Other Details: RSO-011 <i>Instrument Calibration</i>	<p>Pipettors and Cocktail Dispensers “Pipettors and cocktail dispensers require annual verification of calibration ... If acceptance criterion is met, complete the calibration record and apply a new calibration sticker to the unit”</p>	<p><b>Observations:</b> 1. The following calibration records were observed: Pipettor – Bubblers June 3, 2013 June 3, 2014 June 3, 2015 June 8, 2016 Pipettor – Environment June 3, 2013 June 3, 2014 June 3, 2015 June 8, 2016 Pipettor – Betalight Scint July 31, 2013 June 13, 2014 June 3, 2015 June 8, 2016</p>	The criteria are met. There are no findings.	Objectives are met

Environmental Protection					
	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
			<p>Pipettor – Bioassay June 3, 2013 June 3, 2014 June 3, 2015 June 8, 2016</p> <p>Pipettor – Liquid effluent June 3, 2013 June 3, 2014 June 3, 2015 June 8, 2016</p> <p>2. Calibration records for out-of-service pipettes were available for 2004 through to the end of the service life (which varied from 2012 to 2015). It was confirmed that the pipettors were not in service.</p> <p><b>Documents Reviewed:</b> 1. Calibration records binder</p>		
37	Source: Other Details: RSO-013 <i>Liquid Effluent Assessment</i>	<p>“Using form RSO-013-F-01, calculate and record: -The average concentration of the three samples obtained, in Bq/ml -The concentration fo the water in Bq/L -The total activity to be released, in Bq -The average concentration in daily effluent from the site boundary, in Bq/L ...</p>	<p><b>Observations:</b> 1. The form contained all the required components.</p> <p><b>Documents Reviewed:</b> 1. RSO-013-F-01 <i>Liquid Effluent Data Sheet</i></p>	The criteria are met. There are no findings.	Objectives are met

Environmental Protection					
	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
		<p>-The number of days over which the total activity would need to be released in order to maintain the average concentration in daily effluent at less than or equal to 7,000 Bq/L ...</p> <p>-The calculated concentration of effluent from the facility over the number of days ...</p> <p>-The volume of water in liters to be sent to the sewer per release ...</p> <p>-The calculated daily release to sewer from this activity, in Bq ...”</p>			
38	Source: Other Details: RSO-013 <i>Liquid Effluent Assessment</i>	“If the effluent is to be released over more than one day, document the release strategy on form RSO-013-F-03. Staff shall record the daily releases using tracking tables.”	<p><b>Observations:</b></p> <p>1. The release tracking tables were used in several instances during the time period of January 4 – October 2, 2016.</p> <p><b>Documents Reviewed:</b></p> <p>1. RSO-013-F-03 <i>Release Tracking Sheet</i></p>	The criteria are met. There are no findings.	Objectives are met
39	Source: Other Details: RSO-013 <i>Liquid Effluent Assessment</i>	“Once a week is completed, form RSO-013-F-02 shall be completed to document the daily effluent values. The final week total effluent is then input into RSO-013-F-04.”	<p><b>Observations:</b></p> <p>1. The records for January 4 – October 2, 2016 were reviewed. It was verbally explained that there was no record for weeks where there was no water discharged. Gaps in the records were observed. The available records were completed in full.</p>	CNSC staff noted that it is difficult to distinguish between missing records and weeks where there was no water to be discharged.	Objectives were not satisfied

Environmental Protection					
	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
			<p><b>Documents Reviewed:</b></p> <ol style="list-style-type: none"> <li>1. RSO-013-F-02 <i>Weekly Effluent Summary Sheet</i></li> <li>2. RSO-013-F-04 <i>Annual Liquid Effluent Tracking Table</i></li> </ol>		
40	<p>Source: Other Details: RSO-026 <i>Water Level Measurement</i></p> <p><i>SRBT EMP Rev. B August 12, 2016s</i></p>	<p>“The distance measurement from the reference point at the top of the well pipe is recorded for each well on RSO-026-F-01.</p> <p>The Project Engineer or Manager HP&amp;RA inputs the level information into the required spreadsheet RSO-026-F-02 for tracking and trending”</p> <p>Completed three time annually (March, July, November)</p>	<p><b>Observations:</b></p> <ol style="list-style-type: none"> <li>1. Reviewed the excel sheet and field entry form for Aug 31, 2016. The records were complete.</li> </ol> <p><b>Documents Reviewed:</b></p> <ol style="list-style-type: none"> <li>1. RSO-026-F-01 <i>Well Levels – Field Measurements</i></li> <li>2. RSO-026-F-02 <i>Well Level Tracking Sheet</i></li> </ol>	The criteria are met. There are no findings.	Objectives are met
41	<p>Source: Other Details: RSO-031 <i>Tritium concentrations in precipitation</i></p>	<p>“The liquid scintillation counting results are analyzed and the data is entered into a spreadsheet for data maintenance. The data will include for each location, the start and end date of the monthly cycle and the tritium concentrations”</p>	<p><b>Observations:</b></p> <ol style="list-style-type: none"> <li>1. Reviewed results from January 6, 2016 to Sept 1, 2016.</li> <li>2. The entries included the location, the start and end date of the monthly cycle, and the tritium concentrations.</li> </ol> <p><b>Documents Reviewed:</b></p> <ol style="list-style-type: none"> <li>1. Spreadsheet of results</li> </ol>	The criteria are met. There are no findings.	Objectives are met
42	<p>Source: Other Details: RSO-034 <i>Well Purging</i></p>	<p>“Purging of well water is typically performed within 24 hours prior to</p>	<p><b>Observations:</b></p> <ol style="list-style-type: none"> <li>1. CNSC staff verified records from</li> </ol>		Choose an item.

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	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
		<p>scheduled sampling, which is a monthly occurrence ...</p> <p>A known amount of water is purged from each well in order to help achieved an accurate result. This value is derived from the water level measurements by calculation (through RSO-034-F-01)”</p>	<p>Oct 3, 2015 to Jan 8 2015.</p> <p>2. The time from when the well was purged is not recorded. All other required information is being recorded.</p> <p>3. Record revision changed between Aug 2 2016 and Aug 31, 2016. Rev C identified that the work was completed in AM or PM. This information is not available on Rev D.</p> <p><b>Documents Reviewed:</b></p> <p>1. RSO-034-F-01 <i>Projected Purge Volumes</i></p>		
43	<p>Source: Other</p> <p>Details: RSO-037 <i>Real-time Stack Monitoring</i></p>	<p>Overhoff 357 TAMs</p> <p>Flow rate: 4-6 lpm</p> <p>“... the RIG ROOM OPERATIONS LOG will serve as the log which will be used to ensure that chart recorder readings are below 10,000 microcuries/m<sup>3</sup>. After an operation is completed and written in this log the individual completing the information will check the appropriate box on the RIG ROOM OPEARTIONS LOG.”</p>	<p><b>Observations:</b></p> <p>1. CNSC staff reviewed the Rig Room Operations Log from January 4, 2016 to October 5, 2016. CNSC staff concluded that they look complete.</p> <p>2. The log contains: Start time, end time, operation description, operators name, supervisors name, chart recorded reading below 10,000 microcuries/m<sup>3</sup> (yes/no)</p> <p>3. Observed the current readings from the chart recording from USC remote display unit.</p>	<p>The criteria are met. There are no findings.</p>	<p>Objectives are met</p>

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	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
			<p><b>Documents Reviewed:</b> 1. RIG ROOM OPERATIONS LOG January 4, 2016 to October 5, 2016</p>		
44	Source: Other Details: RSO-037 <i>Real-time Stack Monitoring</i>	“When procedure RSO-006 Weekly Stack Monitoring is performed, the paper chart is torn off of the roll and added as a formal record of the release trend for the previous monitoring period.”	<p><b>Observations:</b> 1. The paper charts were stored with RSO-006-F-04. The charts were available for every week verified.</p> <p><b>Documents Reviewed:</b> 1. Paper charts, October 2015 through September 2016</p>	The criteria are met. There are no findings.	Objectives are met
45	Source: Other Details: RSO-037 <i>Real-time Stack Monitoring</i>	“Once per quarter, the system shall be verified for alignment of readings and recorded data. This is performed by completing the process described on form RSO-037-F-01. ... At the conclusion of the quarterly test, if acceptable results are observed a calibration label is affixed to both chart recorders to indicate the system as a whole has passed the test.”	<p><b>Observations:</b> 1. Reviewed the “Chart Recorder Verif” folder. Confirmed that quarterly verification is being performed. 2. Quarterly verification was done on the following dates:</p> <ul style="list-style-type: none"> <li>• Sept 6, 2016</li> <li>• June 2, 2016</li> <li>• March 7, 2016</li> <li>• Dec 4, 2015</li> <li>• Sept 2, 2015</li> <li>• Jun 10, 2015</li> <li>• March 23, 2015</li> <li>• Dec 18, 2014</li> <li>• Sept 18, 2014</li> </ul>	The criteria are met. There are no findings.	Objectives are met

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	SOURCE	CRITERIA	FACTS	ANALYSIS/ FINDINGS	MET/ NOT MET
			<b>Documents Reviewed:</b> 1. RSO-037-F-01, Rev C 2. "Chart Recorder Verif" folder		
46	Source: Other Details: ENG-014 <i>Effective Stack Height</i>	Daily: "Ensure the pressures on the gauges are above 0.27 inches of water for the rig stack and 0.38 inches of water for the bulk stack this will ensure that the stack height of 27.8 meters are maintained."	<b>Observations:</b> 1. On October 5, observed that the rig pressure was 0.3 inches of water and the Bulk stack was 0.45 inches of water. 2. Checked records from Jan 19, 2016 to Oct 5, 2015. The values on all pressure gauges were above the required minimums. 3. Both pressure gauges had stickers requiring replacement by June 24, 2017. 4. SRBT verbally confirmed that stack flow is independently verified once per year. 5. The protective PVC tubing around the sample line for the Rig stack was undone at the elbow joint. SRBT staff reassembled the pipe immediately.  <b>Documents Reviewed:</b> 1. Daily air velocity check list sheet	The criteria are met. There are no findings.	Objectives are met